



SMOKE STUDY GROUP

REPORT ON THE MEETING OF THE

SMOKE STUDY GROUP

FLORENCE (ITALY), 24-26 October, 1983

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Chairman : D.T. WESTCOTT
IMPERIAL TOBACCO LIMITED
Raleigh Road
Bedminster
BRISTOL BS 3 1 QX (Angleterre)

Secretary : C. JOIGNY
S.E.I.T.A.
53, Quai d'Orsay
75340 - PARIS CEDEX 07 (FRANCE)

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JOINT MEETING - TECHNOLOGY AND SMOKE GROUPS
FLORENCE, ITALY, 1983

Wednesday, 26 October

Mr. C. Dietrich, Chairman of the Technology Group opened the meeting welcoming the members of the Smoke Study Group.

The report of the Technology Group meeting was then presented (see enclosure).

The floor was next given to the Chairman of the Smoke Group, Dr. D.T. Westcott, who in turn greeted the Assembly and made some brief announcement on the working programme of his Group on Thursday, 27 and Friday, 28 October.

Mr. J. Flesselles, General Secretary of CORESTA, then made some communications from a technical point of view. First of all, he gave news about the work that the grantees of Winston-Salem are doing at the present time: Mr. Pululu at the University of Bordeaux (France), Miss Akada in Tokyo (Japan), Miss Endrene in Italy and Mr. Gergics in USA. He underlined the importance of the grantees being given the opportunity of working with members of the CORESTA organisation.

Concerning the Vienna Congress, Mr. J. Flesselles precised that, although the Congress fees seem very high, they are, however, a normal contribution to the high expenses caused by such a Congress. It should be noted that fees will be even higher for those who register after the established date and for the non-members (decision of the Scientific Commission at Cape Town, South Africa, in May 1983). The Secretary of CORESTA asked to be informed of any changes in the organigrams of the companies members of the CORESTA so as to have a permanent up-dated files.

Then Mr. H. Klus, representative of the Austrian Tobacco Monopoly, made some announcements concerning the 8th International Congress of CORESTA, to be held in Vienna (Austria), from the 7 to the 12 October, 1984, on the occasion of the 200th anniversary of Austria Tabak.

To insure the success of the Congress he asked that many papers of a high scientific level should be prepared, and that the respective titles should be sent to the Organising Committee before the end of December 1983, and summaries before the end of March 1984, so as to allow the publishing of a special issue of the CORESTA Bulletin.

Mr. A. Beuchat, President of the Agronomy Group then took the floor.

(A summary is presented)

According to the Scientific Commission's resolution in Cape Town it was given to Mr. A. Beuchat the charge of making definite propositions to assure better collaboration between the two main groups, Leaf (Agronomy/Phytopathology) and Industry (Technology/Smoke).

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The existence of CORESTA and the reason of our presence are justified by two facts:

- The existence of tobacco planters
- The existence of tobacco smokers.

None of us can justify our activity without the simultaneous existence of the two groups of people.

The particularity of these two economic groups is the fact each group is practically unaware of their mutual exigencies.

Most of the time the planter is ignorant of what will be done with the tobacco he produces.

The presumption, on the other hand, of the cigarette manufacturer and even more of the leaf buyer is actually of being able to solve all his problems are nearly all thanks to the exclusive intervention of technology.

They forget that many mistakes which effect the final product and even the health of the consumer, and which can not be corrected by technical means, could have been avoided by a better collaboration and better information between the parties; these parties should remember that they are both in the same boat.

Beyond the economic interests of the Leaf and Industry Groups which obviously are not always parallel there certainly exists a field of activity of common interests.

So it is necessary for each group to have the capacity of determining these components of common interest which is only made possible by the exchange of information and by close collaboration.

The delegates of the Agronomy and Phytopathology suggest the following themes for collaboration among Leaf and Industry:

1. Drying Burley in bulk;
2. The use of new phyto regulators;
3. The use of new pesticides;
4. The influence of the nitrogen fertilisers on the nitrosamines of smoke;
5. Smoke condensate;
6. Ames test.

Dr. D.T. Westcott then gave the floor for comments and after a lively discussion it was decided that this document should be presented to the Scientific Commission.

Other brief announcements resulting from the last Scientific Commission meeting were given such as the use of data bank to solve the documentation problems of CORESTA, continuity of the scientific activity at CORESTA (duration of the mandate of Chairman and Secretaries), comments on the CORESTA Bulletin (usability, present form and contents).

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Another scientific paper was then presented.

"Relationship of dilution versus condensate in routine analyses" presented by Mr. M. Rigaux (F.J. Burrus, Switzerland).

By the official standards the volume of solvent to dilute the smoke condensate is independent of the quantity of this condensate. Although there is a trend to a significant decrease of smoke condensate nothing has been made to relate this to the solvent's volume. This over dilution has its maximum expression in the ultra-low cigarettes with consequences on the results.

This paper was then followed by a presentation by Dr. N. Baskevitch (LTR Industries, France) on "The use of on line Data Banks for documentation" the goal being:

1. To inform members on technical aspects linked with the use of on line data banks (equipment, information exchanges on networks, on line service vendors, existing databanks).
2. To investigate among the members on the interest which the development of a CORESTA data bank can represent.
3. To run a feasibility study on the development of a CORESTA data bank after detailed analysis of the problem.
4. To report to the Scientific Commission the results of the feasibility study and make proposals.

The importance of this subject allows us to include on the enclosures of this report the document presented to the participants.

The day ended by a banquet offered by the Italian Tobacco Monopoly represented by Mr. Enzo Mamone who greeted the participants and wished a profitable meeting.

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CORESTA SMOKE STUDY GROUP

FLORENCE, ITALY, 1983

MINUTES

Thursday, 27 October, 1983

9.00 a.m. Opening Session

D.T. Westcott, Chairman of the Group, welcomed the participants and looked forward to a fruitful meeting. He thanked the former Chairman, Dr. L. Hjern (Sweden), for his work on behalf of the Smoke Group, and regretted that he was unable to attend our meeting in Florence. He also thanked the Italian Monopoly, with special reference to N. Carugno, for having invited the Smoke Group to Florence and for having provided so much help to all participants.

N. Carugno then took the opportunity to welcome all members of the Group to Florence and to announce that in future he would be replaced in the Smoke Group by Mrs. M. Neri. He would, however, continue to attend the Technology Group meetings. The Chairman thanked N. Carugno for his participation in the work of the Group over the years. He went on to convey the apologies of H. Kaneko (Japan) who was unable to join the meeting and also expressed his and the Group's wishes for the speedy recovery of T. Osden who was indisposed. He then announced four papers which were not listed in the schedule circulated to Smoke Group members and made the necessary modifications to the Agenda for the next two days.

9.15 a.m. Working Session

The following topics were raised:

1. 8th Congress of CORESTA (Vienna, October 1984)

D.T. Westcott reminded members that H. Klus wished to receive for the Vienna Congress a number of original papers of a good scientific level. (Titles to be given before the end of December 1983, and summaries before the end of March 1984.)

2. Evaluation of the CORESTA Bulletin

The Scientific Commission decided it was necessary and desirable to continue to publish the CORESTA Bulletin, although it is relatively costly to CORESTA, both in terms of effort by the General Secretary and funds. The opinions expressed were generally in favour of maintaining the Bulletin and it was considered to be very useful to smaller organisations with no other significant information sources. Furthermore, it was probably less expensive than a data bank. A member raised the question of continuing with bilingual publishing (English/French : systematic translation of the authors' summaries into the second language) which increases the amount of work for the General Secretary and demands much corrective editing. Other members, however, were firmly in favour of the present layout which is of value to many more people than is the case with a single language edition.

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3. Report on the Scientific Commission Meeting

(Cape Town, South Africa, 16 - 17 May, 1983)

As B. Akehurst, Chairman of the Scientific Commission and delegate to the Agronomy Group was present in the Conference Room, D.T. Westcott asked him to speak about the Cape Town Meeting. The main features of the summary given by B. Akehurst were as follows:

The Scientific Commission was unanimous in requesting the Reading Committee to be more selective and critical in their choice of papers - but to pay due regard to the differences in experience and resources of the country of origin.

The difficulties experienced by the General Secretary in Paris - with regard to both financial and material resources - made it necessary for the Commission to review the activities of CORESTA. This involved discussing the need to continue with the publication of the Bulletin, to maintain the blue mould warning service and also the desirability of providing the General Secretary with a data handling system. B. Akehurst went on to say that the Scientific Commission would like to have the views of the Smoke Group members on these matters. The view had been expressed at the Scientific Commission that the replacement of Chairman and Secretaries was too frequent and that it gave rise to a break in continuity of scientific work. However, the Scientific Commission, after due reflection, recommended that there would be no change in the election procedures.

Plant Industry Liaison Committee (PILC)

(See report by T. Osdene presented at Winston-Salem).

Further consideration of the PILC Report resulted in A. Beuchat, Agronomy Group, being asked to attend the Florence meeting and present to the Smoke/Technology Group meetings, proposals for a closer liaison and collaboration between the Plant Group and the Industry Group which of course A. Beuchat did yesterday (see report of the joint Meeting).

Vienna Congress

The Commission decided to invite an expert in the field of biotechnology to speak at the Vienna Congress. The speaker will be Dr. Schell from the Max Planck Institute, Koln, Federal Republic of Germany.

4. Discussion

Following B. Akehurst's report there were discussions on the following topic:

Scientific Papers

It was suggested that it may be desirable to request each member organisation represented in the various groups to present a minimum number of scientific communications spread over a period of time. This is the procedure currently used at the Tabak Kolloquium.

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Many members thought that such an arrangement would lead to a lowering of standards and they therefore preferred to leave the position as it is since it allows everyone to present the most interesting and original part of his studies. It must be remembered, however, that this procedure does not lower the standards of the work presented at the Tabak Kolloquium and the Chairman will raise this matter at the next Scientific Commission.

PILC

The Chairman, D.T. Westcott, opened the discussion by saying that the proposals put forward by A. Beuchat yesterday should be considered seriously by the Smoke Group so that he could give a positive response to the Scientific Commission.

The question of obtaining analytical data for the Plant Group was discussed and it was finally decided that the Plant Group should put forward experimental proposals for collaboration in the areas of bulk curing of Burley and the use of pesticides. The experimental interpretation of the data would be the responsibility of the Agronomists because the Smoke Group is not sufficiently competent in this area.

Sucker Control Chemicals and Pesticides

H. Reif, Chairman of the Pesticide Sub-Group emphasised the need for tobacco companies to obtain from chemical manufacturers, data on the chemicals used in the growing of tobacco. Such data must be provided in order to obtain Governmental approval for the use of such chemicals. He also drew attention to the fact that degradation of chemicals used during the growing of tobacco does not necessarily reduce or eliminate toxicity. A further problem in this area is the adequate and proper control of such chemicals by growers in the many different countries producing tobacco; he concluded by stressing that the tobacco companies must press hard for the growers to avoid the use of unapproved chemicals.

Discussion also took place concerning measures aimed at the sensible use of nitrated fertilizers in order to control to some extent the smoke chemistry. A. Beuchat's previous comments on the need to differentiate between certain varieties of tobacco were noted and the Group decided that these points should be raised at the next Scientific Commission meeting.

10.45 a.m. Session of Papers

- 10.45 a.m. G. Lionetti and M. Neri (Amministrazione dei Monopoli di Stato, Rome, Italy).
"Determination of moisture in total particulate matters by pyridine-free two components Karl Fischer reagents."
- 11.15 a.m. A. Helms (Hauni Werke, Federal Germany)
"The influence of different types of filter ventilation on the composition of the smoke."

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- 11.45 a.m. S.R. Evelyn (BAT Southampton, United Kingdom)
"Study of an alternative method of characterising
the particulate matter of cigarette smoke."
- 12.15 p.m. - 1.45 p.m. LUNCH
- 1.45 p.m. H. Gaisch (Fabriques de Tabac Reunies, Neuchatel, Suisse)
"Comments on the methodology of cigarette smoke analysis."
- 2.15 p.m. D.E. Townsend (R.J. Reynolds Tobacco Co. Winston-Salem, USA)
"The effect of tobacco moisture on the removal of
cigarette smoke by the tobacco rod."
- 2.45 p.m. M. Muramatsu (The Japan Tobacco and Salt Public Corp.
Yokohama, Japan)
"Estimation of personal exposure to Tobacco Smoke with a
newly developed nicotine personal monitor."
- 3.15 p.m. H.F. Dymond (BAT Southampton, United Kingdom)
(presented by H.G. Horsewell)
"An automated gas chromatographic method for the simultaneous
determination of nicotine and water in cigarette smoke."
- 3.45 p.m. Coffee break
- 4.00 p.m. Task Force on Automation of nicotine and water determination
by GC. (Convener: Dr. J. Hollweg, BAT Hamburg, Federal
Republic of Germany). (cf. report below).

Friday - 28 October 1983

- 9.15 a.m. Task Force on Gas Phase (Convener : Dr Joigny SEITA PARIS, FRANCE
cf. report below).
- 11.00 a.m. D. Imbery (Rhodia AG, Bremen, Federal Republic of Germany)
"The measurement of Filter and Tobacco rod harness during
smoking with the HDS5-Harness Tester."
- 11.45 a.m. Reports of Sub-Groups and Task Forces

Cigar Sub-Group (report presented by L. Gabriel in place of
P. Vander Straeten who was indisposed.)

L. Gabriel stated that studies were in progress in different
countries to determine the smoking standards best suited for
the analytical smoking of cigars weighing less than 1.5 g.
and for cigars weighing more than 5 g. The results will be
presented at the Vienna Congress when P. Vander Straeten
will present a comprehensive summary of the activities of the
Group.

Task Force on the metals in tobacco and smoke (read by
D.T. Westcott)

T. Osdene's report referred to eight new papers published
since the Symposium at Winston-Salem. T. Osdene reminded
members of the Smoke Group that they could obtain printouts

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for any metal in which they were interested by contacting him at Philip Morris, Richmond. He was also interested to receive information on new and original publications in this field. This report was then followed by the presentation of a paper by Mrs. M. Pokrajac, Yugoslavia.

D. Maric-Tesarova, M. Pokrajac and L. Tomic
"Research on the content of cadmium in tobacco and its transfer to the particulate phase of smoke."

Pesticide Sub-Group Report (H. Reif, Austria, read by D.T. Westcott).

Interest in the analysis of pesticide residues has diminished during the past few years and has resulted in a decrease in the work load undertaken by the Group. Its activities can be extended if the Plant Group feels it necessary especially with regard to the question of Ridomil and synthetic pyrethroids.

H. Reif informed the Group that he is now with the Degesh Company (pesticides manufacturer, and CORESTA member). The members present were pleased to confirm unanimously H. Reif's chairmanship of the Pesticide Sub-Group and the Chairman, D.T. Westcott, agreed to formally write to H. Reif informing him of the Group's continued support for his work.

Task Force on Water and Nicotine Determination by GC
(J. Hollweg, BAT Hamburg, Federal Republic of Germany)

The Task Force, constituted at Winston-Salem in 1982 and now made up of 13 members, has focused on the problem of the determination of nicotine. The first meeting in Hamburg compared the work from several laboratories on the effect of analytical parameters and tobacco types on the nicotine values. They also compared the GC method with the standard CORESTA nicotine procedure. Very similar results were obtained with a maximum increase of 10% in values of nicotine obtained by gas chromatography compared with the standard method. J. Hollweg went on to say that the parameters needing evaluation were seen to be type of solvent, internal standard, calibration material and procedure, column material, and the use of a pre-column and splitting system. Two collaborative trials have been organised, the first concerned with the chemical nature of the nicotine used for calibration purposes (free nicotine, nicotine hydrogentartrate or nicotine salicylate) and the second, on the type of GC stationary phase used. Results were to be presented at the second meeting of the Task Force in Sintra, Portugal, on the 14 November, 1983.

Task Force Gas Phase (C. Joigny, SEITA, Paris, France)

The problem still to be resolved concerns the analysis of nitric oxide in the gas phase of tobacco smoke. The

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variation of the results have not changed significantly between the experiments conducted in 1977 and 1981. Details of the instruments given to the co-ordinator by the eleven participating laboratories did not allow him to ascertain clearly the reasons for the discrepancy between results, mainly because the instruments used were very similar. A possible explanation for the difference between results from different laboratories may be due to differences in nitrate contents of the samples. The Task Force therefore decided to undertake a new collaborative trial using two or three types of cigarettes with known nitrate content. The collaborative tests would also include a detailed questionnaire on the experimental procedures used by the eleven laboratories involved.

12.45 p.m. Closing Session

On behalf of all participants, the Chairman, D.T. Westcott, thanked the Italian Monopoly and especially N. Carugno, Madame Neri and their colleagues in Florence for the excellent organisation and welcome that they provided for the Smoke Group Meeting. He took leave of the participants by reminding them of the next meeting in Vienna between 8-12 October, 1984.

The meeting was closed at 1 p.m.

6 February, 1984

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CORESTA SMOKE STUDY GROUP - FLORENCE, ITALY, OCT. 26 - 28 th.

SCIENTIFIC COMMUNICATION

I wish to present a paper

Title : THE EFFECT OF TOBACCO MOISTURE ON THE REMOVAL OF CIGARETTE SMOKE BY THE TOBACCO ROD. D. E. Townsend, R. J. Reynolds Tobacco Company, Winston-Salem, NC 27102

Abstract (150 words)

An understanding of the influences of cigarette parameters on smoke formation and delivery require a knowledge of the extent of smoke removal by the tobacco rod. In the present study, 'tar' and nicotine removal rates were determined by careful measurements of puff-by-puff deliveries as a function of tobacco rod length. The data were found to fit a simple mechanism of coupled first-order removal processes. It was found that for cigarettes made with a full-flavor tobacco blend (12% tobacco moisture), direct condensation of 'tar' and nicotine is a very efficient removal process up to ~20mm behind the char-line. Mechanical filtration of smoke aerosol by the tobacco rod is relatively inefficient. Further, about 50% of the nicotine in mainstream smoke is deposited on the first 10-15mm length of tobacco rod behind the char-line.

The effect of tobacco moisture on the extent of 'tar' and nicotine removal by the tobacco rod was determined by comparison of removal rates. It was found that for cigarettes with tobacco moistures of 12 and 3.8%, the lower tobacco moisture did not affect filtration of the smoke aerosol, but reduced the rates of direct condensation and aerosol formation. Reduced removal rates with lower tobacco moisture result in higher puff-by-puff 'tar' and nicotine deliveries.

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SCIENTIFIC COMMUNICATION

I wish to present a paper

Title :

The measurement of Filter- and tobacco-rod hardness during smoking with the HDS 4-Hardness-Tester

Abstract (150 words)

In the last years a testing unit was developed for measuring the hardness of a cigarette or cigarette-filter during smoking. The complete smoking and test-procedure is regulated by a computer system which gives a lot of possibilities to variate the smoking and testing conditions and calculating the test results. For the mathematical description of the collapsing behaviour of a cigarette filter a so-called collapsing index was defined (HDS-index: HDS = Hardnes During Smo-king). This HDS-index is calculated from the slope of the collapsing curve and the number of puffs at a fixed penetration depth and two factors which depend on the weight of the used stamp and the total puffs of the smoked cigarette. The possibilities of this testing unit will be shown on some examples and the influence of

triacetin content
tobacco moisture
puff frequency
denier per filament ($\Delta p = \text{const.}$)
ventilation degree
retained crimps ratio

will be described on the HDS-index.
Also an example will be given for the determination of an adequate HDS-index for tobacco-rods.

IMBERY Dieter
RHODIA AG
Engesserstr. 8
Postfach 10 79 05
2800 - BREMEN
Allemagne

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CORESTA SMOKE STUDY GROUP - FLORENCE, ITALY, OCT. 26-28 th 1983

SCIENTIFIC COMMUNICATION

I wish to present a paper

Title: D. Marić-Tesarova, M. Pokrajac and L. Tomić

Abstract

RESEARCH ON THE CONTENT OF CADMIUM IN TOBACCO
AND ITS TRANSFER TO THE PARTICULATE PHASE OF
S M O K E

The cadmium contents have been measured by AES-inductively coupled plasma on four varieties of tobacco types, on six varieties of cigarette types and their respective cigarette smokes. The tobaccos were of the 1981 harvest while the cigarettes were produced with these tobaccos at the beginning of 1982. The method of measurement, AES-inductively coupled plasma, is accurate and fast with very low detection limits, and in this respect it is only comparable with neutron activation analysis. The cadmium content in flue cured tobaccos was found to be in the range 1,130 to 7,55 ug/g. The transfer of cadmium from tobacco to the mainstream particulate phase was in the range from 8,7 to 16,2 %, an average of 12,45 %. The levels of cadmium in Burley tobaccos were found to lie in the range from 2,590 - 3,49 ug/g. The transfer of cadmium from tobacco to the mainstream particulate phase was 13,6 %. The cadmium content in the Herzegovina tobacco type was found to be in the range from 4,170 - 4,480 ug/g. The cadmium content of particulate matter from the same tobaccos was in the range from 0,513 to 0,781 ug/g, (transfer 15,1 %). The values obtained for cadmium contents of oriental tobaccos were found to lie in the range from 1,540 to 2,660 ug/g. The cadmium content of the particulate phase of smoke was in the range from 0,140 - 0,399 ug/g (transfer 11,8 %). The given results are adequate to the results obtained by researches of tobacco conducted in the USA, Japan and Canada. The levels of cadmium in the examined cigarettes were determined to lie within the range from 2,880 to 3,96 ug/cig. The transfer of cadmium from the cigarette tobacco to the mainstream particulate phase was in the range from 3,47 to 15,88 % (average 13,47%).

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SCIENTIFIC COMMUNICATION

I wish to present a paper

Title : Estimation of Personal exposure to Tobacco Smoke with a
Newly Developed Nicotine Personal Monitor

Abstract (150 words)

In order to evaluate the actual levels of exposure of nonsmokers to tobacco smoke in their living environments, a convenient personal monitor of nicotine specific for tobacco smoke was newly developed. The nicotine personal monitor consists of a sampler tube containing 450 mg of Uniport-S coated with silicon OV-17 and a portable sampling pump with a mechanical counter for obtaining total sampling volume.

Using the personal monitor attached to a nonsmoker, ambient nicotine was collected on the sampler tube by drawing environmental air at a constant flow rate for a maximum period of 8 hours. The collected nicotine was desorbed by heating and directly transferred onto a GC column with a carrier gas.

The amounts of nicotine inhaled by nonsmokers in various living environments were estimated to be in the range of 0.9 - 40 $\mu\text{g/hr}$ equivalent to the active smoking of about 0.001 - 0.044 ordinary cigarettes in one hour.

Motohiko Muramatsu
Central Research Institute
The Japan Tobacco & Salt Public Corporation
6-2 Umeaoka, Midori-ku,
Yokohama, Kanagawa 227
Japan

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CORESTA SMOKE STUDY GROUP - FLORENCE, ITALY, OCT. 26 - 28. th

SCIENTIFIC COMMUNICATION

I wish to present a paper

Title : AN AUTOMATED GAS CHROMATOGRAPHIC METHOD FOR THE
SIMULTANEOUS DETERMINATION OF NICOTINE AND WATER IN
CIGARETTE SMOKE.

Abstract (150 words)

A rapid automated gas chromatographic method has been developed for the simultaneous quantitative determination of nicotine and water in cigarette smoke condensate. Total analysis time is four minutes per injection and with automation a throughput of 100 samples plus standards is possible in 7 hours.

The use of a stream-splitter allows the determination of nicotine and water from a single injection by splitting the sample onto two packed GC columns. There is no interference to the nicotine or n-heptadecane internal standard peaks by other major smoke compounds, humectants, plasticisers and flavour compounds found in cigarette smoke.

Both GC columns are protected by a short disposable pre-column.

The method has been used on a routine basis and results compared to values obtained by a continuous flow method. A statistical evaluation of the nicotine deliveries measured showed that the GC method gave results which were in good agreement for most commercial cigarette brands irrespective of tobacco type or delivery range.

H.F. DYMOND (présenté par H.G. HORSEWELL)
(BAT - Research and Development, SOUTHAMPTON, England S 09 1 PE)

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CORESTA - SMOKE STUDY GROUP - FLORENCE - ITALY

26 - 28 October 1983

TITLE: STUDY OF AN ALTERNATIVE METHOD FOR CHARACTERISING
 THE PARTICULATE MATTER OF CIGARETTE SMOKE

ABSTRACT

An alternative method for the analysis of particulate matter of cigarette smoke is described. A routine analytical smoking machine and the conventional smoking procedure is employed to trap the particulate phase on a glass fibre filter. The filter containing the particulate matter is transferred without weighing and without further treatment into a combustion train for the determination of the total mass of carbon and nitrogen. In a preliminary test of the method 25 different brands, covering a wide range of tar, nicotine, tobacco blends, flavours and filters, have been examined. 2 ports were used for combustion and analysis, 6 ports for conventional determination of tar and nicotine. The correlation between mass of carbon and tar and the mass of nitrogen vs nicotine have been calculated. The results indicate, especially for carbon, an extremely good correlation.

TITRE: ETUDE D'UNE METHODE ALTERNATIVE POUR DEFINIR LA PHASE
 PARTICULAIRE DE LA FUMEE DE CIGARETTE

SOMMAIRE

Une méthode alternative pour l'analyse de la phase particulaire de la fumée de cigarette est discutée. Une machine à fumer analytique et la procédure de fumage conventionnelle sont utilisées pour piéger la phase particulaire sur un filtre en fibre de verre. Le filtre contenant la phase particulaire est transféré sans pesée et sans aucun traitement ultérieur dans un appareil de combustion pour la détermination de la masse de carbone et d'azote. Dans un test préliminaire de la méthode, 25 différentes marques de cigarettes couvrant un grand éventail de condensat, nicotine, mélanges tabac, arômes et filtres ont été fumées. 2 canaux ont été utilisés pour l'analyse de la combustion et 6 canaux pour la détermination conventionnelle du condensat et de la nicotine, la corrélation entre la masse de carbone et de condensat, et la masse d'azote et la nicotine, est calculée. Les résultats indiquent, spécialement pour la masse de carbone, une corrélation extrêmement encourageante.

Dr S.R. EVELYN

BAT - Research and Development, SOUTHAMPTON - England S 09 1 PE.

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CORESTA SMOKE STUDY GROUP - FLORENCE - ITALIE

26 - 28 th - October 1983

COMMENTS ON THE METHODOLOGY OF CIGARETTE SMOKE ANALYSIS

Helmut W Gaisch
Fabriques de Tabac Réunies SA,
CH-2000 Neuchâtel,
Switzerland
October, 1983

1 SUMMARY / RESUME :

A public discussion concerning the validity of smoke analytical data of ventilated (= diluted) cigarettes makes it necessary to clarify the term of "leakage".

Ambiguity can be avoided if the following definition is adopted:

- * ALL AIR THAT ENTERS THE CIGARETTE HOLDER APART FROM
- * THE MAINSTREAM SMOKE IS CONSIDERED TO BE LEAKAGE.

Une discussion publique concernant la validité des données analytiques de cigarettes ventilées (= diluées) nécessite la clarification du terme "fuite".

L'ambiguïté peut être évitée, si on adopte la définition suivante:

- * TOUT AIR QUI ENTRE DANS L'EMBOUT DE CIGARETTE A PART
- * LA FUMÉE PRINCIPALE EST CONSIDÉRÉ COMME FUITE.

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COMMUNICATION SCIENTIFIQUE

G. Lionetti - M. Neri
Divisione Ricerche
Amministrazione dei Monopoli
di Stato
ROME - ITALIE

Je souhaite présenter une communication

Titre : Détermination de la teneur en eau dans le goudron
par un réactif Karl Fisher avec deux solvants sans
pyridine.

Résumé (150 mots)

On a mis au point une nouvelle méthode pour la détermination de la teneur en eau dans le goudron de la fumée de cigarette par un nouveau type de réactif, sans pyridine, employé dans le titrage d'après Karl Fisher. Le nouveau solvant se compose d'une solution méthanolique de sodium acétate et d'anhydride sulfureuse, tandis que l'élément de titrage est une solution méthanolique d'iode. Les résultats obtenus pour la détermination de la teneur en eau des solutions standards et de la teneur en goudron ont été évalués au point de vue statistique. On a également comparé le réactif Karl Fisher traditionnel avec le nouveau réactif pour la détermination de l'eau dans le goudron. Les résultats de l'analyse concordent entre eux et on a vérifié notamment que le nouveau réactif est plus facile à employer et aussi qu'il ne présente pas les inconvénients du réactif Karl Fisher, tels que le retrotitrage, la stabilisation du solvant, la toxicité et la mauvaise odeur de la pyridine.

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CORESTA SMOKE STUDY GROUP - FLORENCE, ITALY, OCT. 26 - 28th 1983

SCIENTIFIC COMMUNICATION

G. Mionetti - M. Neri
Divisione Ricerche
Amministrazione Monopoli di Stato
Roma

I wish to present a paper

Title : Determination of moisture in total particulate matter
by pyridine-free two-components Karl Fisher reagent.

Abstract (150 words)

A new method was developed for the determination of moisture in total particulate matter of cigarette smoke using a new type of pyridine-free reagent in the titration according to Karl Fisher. The new solvent consists of an acetate sodium methanol solution with sulphur dioxide, while a iodine methanol solution was used for titration. The results achieved in the determination of moisture in standard solutions and total particulate matter were considered and studied statistically. Also, a comparison was made between the conventional Karl Fisher reagent and the new one for the determination of moisture in total particulate matter. The analysis gave results which agreed each with the other; in particular, it was found that the new reagent can be more easily applied. Also, it showed none of the drawbacks evidenced by Karl Fisher; that is, re-titration, solvent stabilization, toxicity and the bad smell of pyridine.

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REPORT ON THE ACTIVITIES OF THE CORESTA PESTICIDE SUB-GROUP
WINSTON-SALEM 1982 - FLORENCE 1983 - H. REIF

The Group has reduced its activities because of the overall declining interest in pesticide residues. It was claimed that some of the participating laboratories could not obtain permission to invest money and manpower in this type of work. In the same way, the EEC pesticide group has now become a standing body and will only become active to undertake special problems. The ISO sub-group WG 4 of ISO/TC 126 has also been disbanded.

With this background in mind the group decided to meet only once a year and to arrange a one-day technical rendezvous, for participants in joint experiments, to discuss collaborative results. These short informal meetings will take place at a central point in Europe, either Hamburg or Frankfurt.

After a long and successful period, Dr. Coa Ayers of BAT, Southampton, has resigned as secretary and handed over to Mr. F. Moser from FTR, Neuchatel. The sub-group owes much, both to him and his enterprise, for being prepared to support a somewhat neglected area of research.

The schedule of the sub-group is now - according to priority

- ridomil
- synthetic pyrethroid, and
- aldicarb

A joint experiment was set up on Ridomil and discussed at an intermediary meeting in December 1982 in Frankfurt. Though the main features of the analytical method are clear, there are several differences in the extraction, deprotonization and partition step. The results were in the case of the Forchheim variation ranging from 2,0 - 4,5 ppm (confidence level 95%), centering around 3,1 ppm. This means that the group would be in the position to provide a screening method which would help as a YES/NO decision. However, the results have too low an accuracy for the procedure to be adopted as an official method. Since such a method would be taken up by ISO, it is very doubtful if the acceptance of an official method is reasonable. The group is continuing to improve the accuracy by modified joint experiments.

In the case of synthetic pyrethroids, the results were more promising, as we could start from a very well adapted method from Shell Laboratories in Sittingbourne. However, the group felt this method - though working well as a research method - too time consuming to use routinely on a large number of samples. Subsequently, we adopted the information given by Mr. Toet, Tobacco Research Board, Zimbabwe, to try out the simple extraction with Florisil/Hexane in a Soxhlet apparatus as described by Reif/Moser in Beitrage zur Tabakforschung. Mr. Toet is using this method to analyse large numbers of samples.

Looking to the future, the collaboration of the group taking part in joint experiments, will meet in December in Frankfurt, if it is necessary. The next general meeting will be in the Spring of 1984.

2001206473



GROUPE FUMEE - SMOKE GROUP

Firenze 1983

27 Octobre

LISTE DES PARTICIPANTS

LIST OF PARTICIPANTS

NOM NAME	SOCIETE COMPANY	PAYS COUNTRY
J. BONNET	BAUMGARTNER PAPIERS	SUISSE
C. DIETRICH	RINSOZ & ORMOND SA.	SUISSE
J.H. WHITE	COURTAULDS ACETATE	U.K.
R. VILLAS-BOAS	TABAQUEIRA	PORTUGAL
F. HEINZER	F.J. BURRUS	SUISSE
V. NORMAN	LORILLARD	U.S.A.
S. MANN	ROBERT FLETCHER & SON	U.K.
J.R. GRAHAM	FILTRONA LTD.	U.K.
H. GAISCH	F.T.R.	CH
H. REIF	DEGESCH	GERMANY
B. FROST	CARRERAS ROTHMANS	U.K.
M. NERI	ITALIAN MONOPOLY	ITALY
M. MURAMATSU	JTS	JAPON
HONG SOON SHIK	KOREAN TOBACCO MONOP.	KOREA
LEE KAECHA	KOREAN TOBACCO MONOP.	KOREA
A. MISKINI	M.T.K.	TUNISIE
W. RAHN	REEMTSMA	W. GERMANY
W. SELKE	KIMBERLY-CLARK	U.S.A.
N. BASKEVITCH	LTR INDUSTRIES	FRANCE
W. VAN PUTTEN	SKAND. TOBAKS	DENMARK
A.E. STAFSENG	TIEDEMANN'S	NORWAY
H. KULP	RETTIG	FINLAND
H.C. LE BELL	RETTIG	FINLAND

2001206474

NOM NAME	SOCIETE COMPANY	PAYS COUNTRY
M. SJÖWALL	SWED. TOB. CO.	SWEDEN
R.A. OLSEN	J.L. TIEDEMANN'S	NORWAY
J.C. KAUTZKY	WATTENS PAPER	AUSTRIA
D.E. TOWNSEND	R.J. REYNOLDS	U.S.A.
A. RODGHAN	R.J. REYNOLDS	U.S.A.
A. NORMAN	R.J. REYNOLDS	U.S.A.
B.C. AKEHURST	CARRERAS ROTHMANS	U.K.
D.A. SILBERSTEIN	L.T.R. INDUSTRIES	FRANCE
E. SUHR	HEINR. BORGWALDT	GERMANY
M.L. STRYDOM	RUPERT INT.	S. AFRICA
M. DJORDJEVIC	TOBACCO INSTITUTE	YUGOSLAVIA
D.E. MATHIS	EASTMAN KODAK	U.S.A.
M.E. DA SILVA E COSTA	TABAQUEIRA	PORTUGAL
R. SELIGMAN	PHILIP MORRIS INC.	U.S.A.
A. GALAL	EASTERN TOBACCO	EGYPT
B. AVERSANO	IST. SPERL. TABACCO	ITALY
G. LIONETTI	ITALIAN MONOPOLY	ITALY
C.I. AYRES	BAT	U.K.
H.G. HORSEWELL	BAT	U.K.
S.R. EVELYN	BAT	U.K.
L. DE SALLES DE HYS	CERTTA	FRANCE
C. BRAUN	HEINTZ VAN LANDEWYCK	LUXEMBURG
J. VAN DER HEIDE	TURMAC	NEDERLAND

.../...

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NOM NAME	SOCIETE COMPANY	PAYS COUNTRY
L. KAPER	DOUWE EGBERTS	NEDERLAND
D. MARIC	TOBACCO INSTITUTE	YUGOSLAVIA
M. SORAK POKRAJAC	COUR TVORNICA DUBANA	YUGOSLAVIA
B. SLAT	TOBACCO INSTITUTE	YUGOSLAVIA
F. MEIXNER	SCHOELLER U. HOESCH	GERMANY
G. GAPAN!	MONOPOLY INSTITUTES	TURKEY
K.C. THELEN	WATTENS PAPER	AUSTRIA
A. HELMS	HAUNI-WERKE	GERMANY
D. IMBERY	RHODIA A.G.	GERMANY
J. HOLLWEG	BAT	GERMANY
R.E. MORSE	R.J. REYNOLDS	USA
G. GABRIEL	BUNDESVERBAND ZIGARRENIN- DUSTRIE	USA
G. LIPP	MARTIN BRINKMANN AG	GERMANY
H. ELMENHORST	MARTIN BRINKMANN AG	GERMANY
H. KLUS	AUSTRIA TABAK	AUSTRIA
C. JOIGNY	SEITA	FRANCE
P. CESCHINI	ED. LAURENS SA	SWITZERLAND
D.T. WESTCOTT	I.T.L.	U.K.

2001206476

USE OF ONLINE DATABANKS

FOR INFORMATION RETRIEVAL

N. BASKEVITCH

LTR INDUSTRIES

Presented to the joint session of Technology/Smoke study groups.

- Florence 1983 -

2001206477

USE OF ON LINE
DATA BANK FOR INFORMATION RETRIEVAL

INTRODUCTION

The basis of all scientific work, in the tobacco or in any other field, is a complete revue of what has been done before. It is then very important to have access to good tools for literature survey.

We all know how this is difficult, and specially in the tobacco field where informations are scattered in a number of magazines. What possibilities can use research people :

- Or their company or institute has a library. It must be of a very large size to catch all information, and this is expensive, in surface as in cost of magazines,
- Or they are lucky to work near from a university which has a large library,
- Or they have access to data bank terminals through which they can be in contact with most of the information stored in libraries in the entire world, and this is the subject I would like to talk to you about today.

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Among the numerous tools that computers are giving to us nowadays, there is one of direct interest for scientists : on-line databanks for information retrieval.

A databank is a computer system which gives access to information. Generally speaking, there are two types of databanks :

- 1 - Documentation databanks - They contain literature references about various subjects, from Chemistry (Chemical Abstracts, for example) to economy (Economical Abstracts) or patents (INPI, PATSEARCH).

Some databanks can be specialized in a specific subject like paper (PIRA) or coffee (COFFEELINE).

In theory, these databanks guarantee a complete survey of the information available in a given field.

The user can be confident that specialists have stored in the databank all papers published in a given list of magazines.

- 2 - Facts databanks - This second type of databanks gives facts, for example thermodynamical values, meteorological informations, commercial statistics or information on financial relationships between companies.

.../...

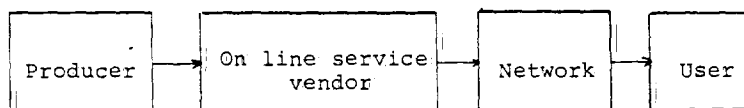
2001206479

Those databanks answer an always increasing demand for information retrieval. They allow the replacement of large surface libraries storing collections of periodicals.

By the end of 1982, it was possible to have access in France, to 340 different databanks. By the middle of 1983, a new list of 45 databanks has been added.

How to communicate with a databank ?

The process is simple when you look at it as a whole. When you get to details it is a little more complicated.



The PRODUCER collects, screens, updates and analyse informations linked with the subject. He runs a computer treatment and prepare a computer tape which he forwards at regular intervals to the ONLINE SERVICE VENDOR.

The ONLINE SERVICE VENDOR owns a powerful computer. He loads and stores on this computer the databanks obtained from the PRODUCER. He assures the good run of the questionning computer and of the software.

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Some example of PRODUCERS and ONLINE SERVICE VENDORS :

CHEMICAL ABSTRACTS is the PRODUCER of a databank called CA SEARCH.

This databank is loaded on computers belonging to different ONLINE SERVICE VENDORS like :

- . DIALOG , of Lockheed Missiles and Space Company in Palo Alto ;
- . SDC , of System Development Corporation, USA ;
- . INFOLINE, of Pergamon in the U.K. ;
- . ESA-IRS , of the European Space Agency in Italy ;
- . QUESTEL , of Telesystem in France.

Between the computer terminal owned by the USER and the ONLINE SERVICE VENDOR computer, one needs a wire which put into contact two telephone stations, wherever they are in the world.

However the cost of long distance calls rises strongly the price of the communication. TELECOM services in many countries have decided to set up specialised networks to carry over information between computers and terminals. The use of these networks is considerably cheaper than "normal" long distance calls.

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The best known NETWORKS are :

- in France : TRANSPAC
- in Europe : EURONET
- in the USA : TYMNET or TELENET
- in South Africa : SAPONET
- in Brazil : INTERDATA

New networks are created at a high rate. This will make easier the access of users to databanks and contribute to their development.

Finally, the USER, to get in touch with the computer of the ONLINE SERVICE VENDOR needs a terminal. This can be either a keyboard-screen, a keyboard-printer or a keyboard-screen-printer combination. This terminal is equipped with an acoustic or electric modem to be connected with the telephone line.

How does the system work ?

- The USER has a terminal and a telephone line,
- He asks the Network to supply him with an identification number (NUI).
- He signs a contract with the ONLINE SERVICE VENDOR who gives him a confidential access number to his computer.
- To question a databank, the USER operates as follows :
 - . Dial the phone number of the NETWORK, then the terminal is connected and all the dialog is now made from the keyboard.

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. Type then in order :

- the phone number of the ONLINE SERVICE VENDOR,
- the identification number (NUI),
- the confidential access number to the ONLINE SERVICE VENDOR,
- the code name of the desired databank.

Everything is now ready for questionning the databank :

Let us take an example :

We would like to run a litterature survey on the analysis of carbon monoxide in cigarette smoke.

We have decided to question CHEMICAL ABSTRACTS loaded on ESA-IRS computer.

We have ddaled the Network TRANSPAC Number, the ESA-IRS phone number, one NUI and one confidential password. The computer accepts the connection and gives the starting time.

We ask to question CHEMICAL ABSTRACTS Databank, and will use keywords to obtain one information.

For each keyword the computer will answer the number of appearance in the databank. For each of the following keywords the answer is :

- carbone	answer : 250362 appearance
- monoxide	28709 appearance
- smoke	6955 appearance
- cigarette	494 appearance
- analyse	320746 appearance

.../...

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Then we combine the five keywords together looking for papers having all the keywords at the same time. Computer answers six papers.

We ask to look at the titles and reference of the six articles (see Annex 1).

Interrogation is then ended and the communication disconnected.

Let us talk about cost

The price of a terminal with screen, printer and modem is in the range of 15 000 to 30 000 FF. This can be rented for around 1 000 FF per month.

The use of the NETWORK costs from 30 FF to 40 FF an hour. The use of a databank, invoiced by the ONLINE SERVICE VENDOR costs between 300 and 400 FF per hour.

The incoming on the market of small terminals of the type MINITEL, rented by the telephone services for around 70 FF per month will considerably increase in the near future the number of users of databanks.

International Networks

The number of countries having access to each other through NETWORKS specifically for computer communication is increasing every month and will soon cover the largest part of the world.

The annexed list (Annex 2) gives the today situation of Networks connecting France with other countries.

Among the members of CORESTA, 117 on 136 will belong to countries interconnected with France and Europe by the end of 1984.

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LANGUAGES

Each ONLINE SERVICE VENDOR has developped its own language to load the databanks on its computer. The USER needs to have a certain natural talent to cope with the different languages.

If you want to question, from a European country, most of the databanks available around the world, you need, besides English, to know at least 4 languages :

- DIALOG (Lockheed)
- ORBIT (SDC)
- RECON (ESA-IRS)
- MISTRAL (QUESTEL)

These languages have many commun features, but, and this is more cumbersome, a number of small differences.

ONLINE SERVICE VENDORS propose training sessions and handbooks to learn the languages. However we must say that there is a need for some practise before a language can be mastered, in order not to loose time during an interrogation.

HOW TO SELECT THE DATA BANK

Databanks are a relatively new phenomenon, but many databanks are already available. There is a business competition between different ONLINE SERVICE VENDORS. Each of them tries to offer the most complete and complementary range of databanks so as to gain regular customers who will appreciate to avoid the use of different languages at one time.

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The beginner user will start by questioning different ONLINE SERVICE VENDORS offering similar possibilities. Sooner or later he will find that some databanks are richer in information than others and rather than to question different databanks on one given subject, he will systematically call on the richest.

As far as tobacco is concerned, the databank produced by CHEMICAL ABSTRACTS, available through several ONLINE SERVICE VENDORS, is, second on our mind, the richest currently available, at least for technology and chemistry aspects. But Agronomy is not as well covered.

To illustrate this question, I decided to run the following exercise : I took literature references in CORESTA bulletins and in Tobacco Abstracts ; and we tried to retrieve them in different databanks.

The title of the first page was :

"Chemical studies on tobacco smoke"

LI : Studies on non volatile Nitrosamine in tobacco

Authors : S.S. HECHT and T.C. TSO

Reference : Beiträge zur Tabakforschung 9 1-7 (1977)

Different databanks were questioned, using the following keywords :

- Tobacco
- Smoke
- Nitrosamine
- Non volatile

.../...

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We only found this paper in CHEMICAL ABSTRACTS databank, using the ONLINE SERVICE VENDOR "ESA-IRS".

In this bank, 4 references corresponded to the combination of the 4 keywords, and among them, the paper which we were looking for.

We operated in the same way for a second paper .

Title : Biochemical Changes in leaf pigments and chemical constituents during Flue-curing of tobacco.

Authors : A. GOPALAM and N.C. GOPALACHARI

Reference : Tobacco Research 5 117-124 (1979)

We combined 4 keywords :

- Biochemical
- Changes
- Leaf
- Pigment

Again, we only found this paper in CHEMICAL ABSTRACTS databank where 4 papers corresponded to the 4 keywords.

But we were unable to find trace of several papers on tobacco, published in a Canadian magazine "THE LIGHTER" or in Japanese magazines.

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The first objective of this presentation was to describe for those of the audience who were not already familiar with it, a new information retrieval technique through the use of online databanks.

- Do you think that the creations of a databank, which could be called CORESTA databank could be useful to you ?

A CORESTA databank could also supply facts, for example the survey of BLUE MOLD progress.

What I suggest today is, as a first step, to set up a task force, in the Technology group which will run a feasibility study on the development of a CORESTA databank.

We will obviously consult other associations, comparable to CORESTA, which have already decided to go in this direction.

or

RESEARCH ORGANIZATION FOR THE PAPER AND BOARD (PIRA) in the U.K.

ANSPAC 0021508
50003340QUEST

M
RPAC H12B V11111

ase enter your EEA-QUEST password
.\$\$\$\$\$ Connection accepted in file32 11:38:53
Port=092-C : Quest-language selected

BEGIN: 2
-----14Oct83 11:40:06 User2979---
0.82 AU 1.23 Minutes in File32
0.20 AU Telecomm charge
1.02 AU approx Total
le 02: CHEMABS:VOL66-99.12
OPR. 1983 BY THE AMER. CHEM. SOC.)
T ITEMS: DESCRIPTION (+=OR;+=AND;-=NOT)

2001206489

F CARBON
1232005 CARBON

F MONOXIDE
2 29884 MONOXIDE

F SMOKE
3 6998 SMOKE

F CIGARETTE
4 495 CIGARETTE

F ANALYSIS
5322735 ANALYSIS

C 1 AND 2 AND 3 AND 4 AND 5
6 6 1 AND 2 AND 3 AND 4 AND 5

2001206490

7 6/4/1-6

TYPE 6/4/1

95155645 Chemabs No. 18 journal

Determination of carbon monoxide in cigarette smoke - comparison between the
gas chromatographic and infrared methods

Lionetti, Giovanni; Neri, Mirella

Serv. Ric. Tecnol. Chim. Amministrazione Monopoli Stato Rome Italy

Riv. Merceol.: (81) P 3-9: Vol 20: No 1: In Ital: Coden: RIMED: ISSN

9392064:

Sections: 053002 / 011

Registry No.: 630-08-0 analysis <determination of, in tobacco smoke, I

spectroscopy and gas chromatography in>

Mol. Formula: CO

Terms: cigaret smoke analysis spectroscopy chromatography / carbon monoxid

determination tobacco smoke

CT: TOBACCO SMOKE AND SMOKING.<carbon monoxide determination in, I

spectroscopy and gas chromatography in>

TYPE 6/4/2

92141245 Chemabs No. 17 journal

Formation and analysis of carbon monoxide in cigarette mainstream and
sidestream smoke

Hoffmann, Dietrich; Adams, John D.; Wynder, Ernst L.

Naylor Dana Inst. Prevent. Dis. Am. Health Found. Valhalla USA NY

SozEp-Ber.: (79) P 57-61: No 1: Carbon Monoxide Cardiovasc. Dis.: In Eng

Coden: SOBED:

Sections: 004000

Registry No.: 630-08-0 biological studies <of cigaret smoke>

Mol. Formula: CO

Terms: carbon monoxide cigaret smoke review

CT: TOBACCO SMOKE AND SMOKING.cigaret.<carbon monoxide of>

2001206491

TYPE 6/4/4

3711274E Chemabs No. 15 journal

Expired air, carbon monoxide and serum thiocyanate as objective measures of cigarette exposure

Vogt, Thomas M.; Selvin, Steve; Widdowson, Graham; Hulley, Stephen B.

Sch. Public Health, Univ. California, Los Angeles

Am. J. Public Health (77) P 545-9; Vol 67; No 6; In Eng; Coden: AJHEA;

Sections: 004013

Registry No.: 502-04-5 analysis <determination of, in blood, tobacco smoking in relation to>; 530-08-0 analysis <determination of, in breath, tobacco smoking in relation to>

Mol. Formula: CNS: CO

Terms: cigaret smoking carbon monoxide thiocyanate / carbon monoxide breath tobacco smoking / thiocyanate blood tobacco smoking

CT: AIR, respiratory, <thiocyanate determination in, tobacco smoking in relation to>/BLOOD ANALYSIS, <thiocyanate determination in, tobacco smoking in relation to>/TOBACCO SMOKE AND SMOKING, <carbon monoxide of breath and thiocyanate of blood after>

TYPE 6/4/4

37099024 Chemabs No. 113 journal

Determination of carbon monoxide in cigarette smoke using an electrochemical transducer

Browner, R. E.; Copeland, G. K. E.; Stockwell, P. B.; Bergman, I.

Dep. Ind. Lab. Gov. Chem. London

Beitr. Tabakforsch.: (77) P 38-44; Vol 9; No 1; In Eng; Coden: BETAA;

Sections: 011007

Registry No.: 530-08-0 biological studies <electrochemical transducer determination of, in cigaret smoke>

Mol. Formula: CO

Terms: cigaret smoke carbon monoxide determination / electrochemical transducer tobacco smoke analysis

CT: TOBACCO SMOKE AND SMOKING, cigaret, <carbon monoxide determination in, by electrochemical transducer>

2001206492

TYPE 6/4/6
78108416 Chemabs No. 17 journal

Carbon monoxide in alveolar air as an index of exposure to cigarette smoke

Rambone, R. G.; Coppin, Catherine A.; Guz, A.

Med. Sch., Charing Cross Hosp., London

Brit. Med. J. (Clin. Sci. Med. Ed.): (1975) P 495-501; Vol 51; No 5; In Eng; Coden: CSMHC;

Sections: 004001

Registry No.: 630-08-0 Biological studies of alveolar air, cigaret smoking in

relation to

Mol. Formula: CO

Terms: alveolar air carbon monoxide analysis / carbon monoxide analysis cigaret

smoke

CT: AIR, respiratory, <carbon monoxide in, cigaret smoking in relation

to>/CARBONYLHEMOGLOBINS, of blood, carbon monoxide in alveolar air in relation

to>/TOBACCO SMOKE AND SMOKING, <carbon monoxide of alveolar air in>

TYPE 6/4/6

78108416 Chemabs No. 17 journal

Infrared method for the determination of carbon monoxide and carbon dioxide

levels in cigarette smoke

Williams, H. B.; Belk, C. W., II

Res. Dep., Liggett and Myers Inc., Durham

Beitr. Tabakforsch.: (72) P 210-15; Vol 6; No 5; In Eng; Coden: BETAA;

Sections: 0111007 / 009

Registry No.: 124-38-9 analysis <determination of, in, in cigarette smoke>

630-08-0 analysis <>

Mol. Formula: CO2

Terms: IR analysis cigaret smoke / carbon monoxide determination cigaret smoke

CT: TOBACCO SMOKE AND SMOKING, <carbon dioxide and carbon monoxide
determination in, of cigarette>

7 LOGOFF

-----140ct83 11:51:29 User2979---

11.95 AU 11.39 Minutes in File02

1.30 AU Telecomm charge

0.66 AU 6 Online Prints

14.52 AU approx Total

CSA-QUEST session terminated at 11:51:41

LIB PAD

2001206493

MEMBRES ACTIFS
DU CORESTA
(PAYS)

ACCESSIBILITE
AUX RESEAUX INTERNATIONAUX

AFRIQUE DU SUD	OUI (AVRIL 83)
ALGERIE	NON
AUSTRALIE	OUI (OCTOBRE 82)
AUTRICHE	OUI (SEPTEMBRE 83)
BELGIQUE	OUI (MARS 80)
BRESIL	OUI (AVRIL 83)
BULGARIE	1984 (?)
CAMEROUN	PREVU DEBUT 1984
CANADA	OUI (DECEMBRE 82)
COLOMBIE	1984 (?)
COREE	OUI (AVRIL 83)
CUBA	NON
DANEMARK	OUI (MARS 80)
ESPAGNE	OUI (JUN 80)
EGYPTE	NON
FINLANDE	OUI (MAY 82)
FRANCE	OUI (MARS 80)
GRANDE-BRETAGNE	OUI (MARS 80)
GRECE	OUI (SEPT. 83)
HONGRIE	NON
INDE	1984 (?)
INDONESIE	1984 (?)
IRAK	NON
IRAN	NON

2001206494

ITALIE	OUI (MARS 80)
JAPON	OUI (AVRIL 82)
JORDANIE	NON
LIBAN	1984 (?)
LIBYE	NON
LUXEMBOURG	OUI (MARS 80)
MADAGASCAR	NON
MALAISIE	1984 (?)
MAROC	1984 (?)
MOZAMBIQUE	NON
NORVEGE	OUI (MARS 80)
UGANDA	NON
PAKISTAN	NON
PAYS-BAS	OUI (MARS 80)
PHILIPPINES	1984 (?)
POLOGNE	NON
PORTUGAL	OUI (MAI 81)
R.D.A.	NON
R.F.A.	OUI (MARS 80)
SUEDE	OUI (MARS 80)
SUISSE	OUI (MARS 80)
SYRIE	NON
TANZANIE	NON
TCHECOSLOVAQUIE	NON
THAILANDE	1984 (?)

2001206495

TUNISIE	1984
TURQUIE	1984 (?)
URUGUAY	NON (Mais ARGENTINE 84)
U.S.A.	OUI (79)
YUGOSLAVIE	1984 (?)
ZIMBABWE	NON

2001206496

2001206497